

INSTRUCTION MANUAL AND SAFETY INSTRUCTIONS

WARNING

Improper and unsafe use of this power tool can result in death or serious bodily injury!

This manual contains important information about product safety. Please read and understand this manual before operating the power tool. Please keep this manual available for others before they use the power tool.

MANUAL DE INSTRUCCIONES E INSTRUCCIONES DE SEGURIDAD

ADVERTENCIA

La utilización inapropiada e insegura de esta herramienta eléctrica puede resultar en lesiones serias o en la muerte!

Este manual contiene información importante sobre la seguridad del producto. Lea y comprenda este manual antes de utilizar la herramienta eléctrica. Guarde este manual para que puedan leerlo otras personas antes de que utilicen la herramienta eléctrica.



DOUBLE INSULATION
AISLAMIENTO DOBLE

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IMPORTANT INFORMATION

Read and understand all of the operating instructions, safety precautions and warnings in the Instruction Manual before operating or maintaining this power tool.

Most accidents that result from power tool operation and maintenance are caused by the failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing a potentially hazardous situation before it occurs, and by observing appropriate safety procedures.

Basic safety precautions are outlined in the "SAFETY" section of this Instruction Manual and in the sections which contain the operation and maintenance instructions.

Hazards that must be avoided to prevent bodily injury or machine damage are identified by **WARNINGS** on the power tool and in this Instruction Manual.

Never use this power tool in a manner that has not been specifically recommended by HITACHI, unless you first confirm that the planned use will be safe for you and others.

MEANINGS OF SIGNAL WORDS

WARNING indicates a potentially hazardous situations which, if ignored, could result in serious personal injury.

CAUTION indicates a hazardous situations which, if ignored, could result in moderate personal injury, or could cause machine damage.

NOTE emphasizes essential information.

SAFETY

IMPORTANT SAFETY INSTRUCTIONS FOR USING ALL POWER TOOLS

⚠ WARNING: Death or serious bodily injury could result from improper or unsafe use of power tools. To avoid these risks, follow these basic safety instructions:

READ ALL INSTRUCTIONS

1. NEVER TOUCH MOVING PARTS.

Never place your hands, fingers or other body parts near the tool's moving parts.

2. NEVER OPERATE WITHOUT ALL GUARDS IN PLACE.

Never operate this tool without all guards or safety features in place and in proper working order. If maintenance or servicing requires the removal of a guard or safety feature, be sure to replace the guard or safety feature before resuming operation of the tool.

3. ALWAYS WEAR EYE AND EAR PROTECTOR.

Protect yourself from flying or expelled wood chips, metal particles or other debris by using protective goggles or equivalent eye protector. Wear ear protector to protect yourself from excessive noise.

4. PROTECT YOURSELF AGAINST ELECTRIC SHOCK.

Prevent body contact with grounded surfaces such as pipes, radiators, ranges and refrigeration enclosures. Never operate the tool in damp or wet locations.

5. DISCONNECT TOOLS.

Never leave the tool connected to a power source. Always disconnect the tool from its power source before servicing, inspecting, maintaining, cleaning and before changing or checking any parts.

6. AVOID UNINTENTIONAL STARTING.

Don't carry the tool while it is connected to its power source. Don't carry the tool with your finger near the power switch. Be sure the power switch is in the "off" position before connecting the tool to its power source.

7. STORE TOOL PROPERLY.

When not in use, the tool should be stored in a dry place. Keep out of reach of children. Lock-out the storage area.

8. KEEP WORK AREA CLEAN.

Cluttered areas and benches invite injuries. Clear all work areas and work benches of unnecessary tools, debris, furniture, etc.

9. CONSIDER WORK AREA ENVIRONMENT.

Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit and well ventilated.

Don't use tool in presence of flammable liquids or gases.

Power tools produce sparks during operation. They also spark when switching ON/OFF. Never use power tools in sites containing lacquer, paint, benzine, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive.

10. KEEP CHILDREN AWAY.

Do not let visitors contact tool or extension cord.

All visitors should be kept safely away from work area.

11. DON'T FORCE TOOL.

It will do the job better and safer at the rate for which it was intended.

12. USE RIGHT TOOL.

Don't force small tool or attachment to do the job of a heavy-duty tool.

Don't use tool for purpose not intended—for example—don't use circular saw for cutting tree limbs or logs.

13. DRESS PROPERLY.

Do not wear loose clothing or jewelry. They can be caught in moving parts.

Rubber gloves and non-skid footwear are recommended when working outdoors.

Wear protective hair covering to contain long hair.

14. USE FACE, DUST MASK OR RESPIRATOR IF OPERATION IS DUSTY.

All persons in the area where power tools are being operated should also wear face, dust mask or respirator.

15. DON'T ABUSE CORD.

Never carry tool by cord or yank it to disconnect from receptacle.

Keep cord from heat, oil and sharp edges.

16. SECURE WORK.

Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.

17. DON'T OVERREACH.

Keep proper footing and balance at all times.

18. MAINTAIN TOOLS WITH CARE.

Keep tools sharp and clean for better and safer performance.

Follow instructions for lubricating and changing accessories.

Inspect tool cords periodically and if damaged, have repaired by an authorized service center. Inspect extension cords periodically and replace if damaged.

Keep handles dry, clean, and free from oil and grease.

19. REMOVE ADJUSTING KEYS AND WRENCHES.

Keys and adjusting wrenches remove from tool before turning it on.

20. OUTDOOR USE EXTENSION CORD.

When tool is used outdoors, use only extension cord intended for use outdoors and so marked.

21. STAY ALERT.

Watch what you are doing. Use common sense. Do not operate tool when you are tired.

Tools should never be used by you if you are under the influence of alcohol, drugs or medication that makes you drowsy.

22. CHECK DAMAGED PARTS.

Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation.

A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this Instruction Manual.

Have defective switches replaced by the authorized service center.

Do not use tool if switch does not turn it on and off.

23. NEVER USE A POWER TOOL FOR APPLICATIONS OTHER THAN THOSE SPECIFIED.

Never use a power tool for applications other than those specified in the Instruction Manual.

24. HANDLE TOOL CORRECTLY.

Operate the tool according to the instructions provided herein. Do not drop or throw the tool. Never allow the tool to be operated by children, individuals unfamiliar with its operation or unauthorized personnel.

25. CHECK FOR LIVE WIRES.

Avoid the risk of severe electrical shock by checking for live electrical wires that may be buried in walls, floors or ceilings. The wires should be de-energized before work begins.

26. KEEP ALL SCREWS, BOLTS AND COVERS TIGHTLY IN PLACE.

Keep all screws, bolts, and plates tightly mounted. Check their condition periodically.

27. DO NOT USE POWER TOOLS IF THE PLASTIC HOUSING OR HANDLE IS CRACKED.

Cracks in the tool's housing or handle can lead to electric shock. Such tools should not be used until repaired.

28. BLADES AND ACCESSORIES MUST BE SECURELY MOUNTED TO THE TOOL.

Prevent potential injuries to yourself or others. Blades, cutting implements and accessories which have been mounted to the tool should be secure and tight.

29. KEEP MOTOR AIR VENT CLEAN.

The tool's motor air vent must be kept clean so that air can freely flow at all times. Check for dust build-up frequently.

30. OPERATE POWER TOOLS AT THE RATED VOLTAGE.

Operate the power tool at voltages specified on its nameplate.

If using the power tool at a higher voltage than the rated voltage, it will result in abnormally fast motor revolution and may damage the unit and the motor may burn out.

31. NEVER USE A TOOL WHICH IS DEFECTIVE OR OPERATING ABNORMALLY.

If the tool appears to be operating unusually, making strange noises, or otherwise appears defective, stop using it immediately and arrange for repairs by a Hitachi authorized service center.

32. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.

Don't leave tool until it comes to a complete stop.

33. CAREFULLY HANDLE POWER TOOLS.

Should a power tool be dropped or struck against hard materials inadvertently, it may be deformed, cracked, or damaged.

34. DO NOT WIPE PLASTIC PARTS WITH SOLVENT.

Solvents such as gasoline, thinner benzine, carbon tetrachloride, and alcohol may damage and crack plastic parts. Do not wipe them with such solvents.

Wipe plastic parts with a soft cloth lightly dampened with soapy water and dry thoroughly.

35. USE ONLY GENUINE HITACHI REPLACEMENT PARTS.

Replacement parts not manufactured by Hitachi may void your warranty and can lead to malfunction and resulting injuries. Genuine Hitachi parts are available from your dealer.

IMPORTANT SAFETY INSTRUCTIONS FOR USE OF THE HAMMER DRILL

⚠ WARNING: Death or serious bodily injury could result from improper or unsafe use of the hammer drill. To avoid these risks, follow these basic safety instructions:

1. **NEVER** touch the tool bit with bare hands after operation.
2. **NEVER** wear gloves made of stuff liable to roll up such as cotton, wool, cloth or string, etc.
3. **ALWAYS** attach the side handle and securely grip the Hammer Drill.
4. **ALWAYS** wear eye and ear protectors during operation.
5. **ALWAYS** be careful with buried object such as an underground wiring.
Touching these active wiring or electric cable with this tool, you may receive an electric shock.
Comfirm if there are any buried object such as electric cable within the wall, floor or ceiling where you are going to operate here after.
6. **ALWAYS** set the bit rotation switch lever to the R-side when boring concrete or similar hard materials in IMPACT mode. (Fig. 1)
7. **ALWAYS** set the change lever in ROTATION mode when tightening or loosening screws. (Fig. 2)

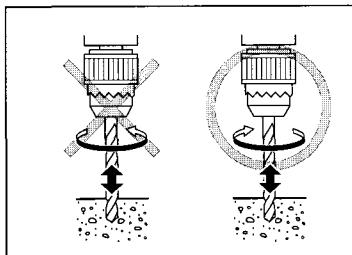


Fig. 1

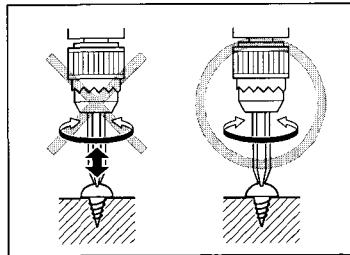


Fig. 2

REPLACEMENT PARTS

When servicing use only identical replacement parts.

Repairs should be conducted only by a Hitachi authorized service center.

POLARIZED PLUGS

To reduce the risk of electric shock, this equipment has a polarized plug (one blade is wider than the other).

This plug will fit in a polarized outlet only one way.

If the plug does not fit fully in the outlet, reverse the plug.

If it still does not fit, contact a qualified electrician to install the proper outlet.

Do not change the plug in any way.

USE OF EXTENSION CORD

Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Table shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

MINIMUM GAGE FOR CORD SETS

Ampere More Than	Rating Not More Than	Total Length of Cord in Feet (Meter)			
		0 - 25 (0 - 7.6)	26 - 50 (7.9 - 15.2)	51 - 100 (15.5 - 30.5)	101 - 150 (30.8 - 45.7)
0 - 6	18	16	16	14	
6 - 10	18	16	14	12	
10 - 12	16	16	14	12	
12 - 16	14	12	Not Recommended		

⚠ WARNING: Avoid electrical shock hazard. Never use this tool with a damaged or frayed electrical cord or extension cord.
Inspect all electrical cords regularly. Never use in or near water or in any environment where electric shock is possible.

DOUBLE INSULATION FOR SAFER OPERATION

To ensure safer operation of this power tool, HITACHI has adopted a double insulation design. "Double insulation" means that two physically separated insulation systems have been used to insulate the electrically conductive materials connected to the power supply from the outer frame handled by the operator. Therefore, either the symbol "□" or the words and "Double insulation" appear on the power tool or on the nameplate.

Although this system has no external grounding, you must still follow the normal electrical safety precautions given in this Instruction Manual, including not using the power tool in wet environments.

To keep the double insulation system effective, follow these precautions:

- Only HITACHI AUTHORIZED SERVICE CENTER should disassemble or assemble this power tool, and only genuine HITACHI replacement parts should be installed.
- Clean the exterior of the power tool only with a soft cloth moistened with soapy water, and dry thoroughly.

Never use solvents, gasoline or thinners on plastic components; otherwise the plastic may dissolve.

**SAVE THESE INSTRUCTIONS
AND
MAKE THEM AVAILABLE TO
OTHER USERS OF THIS TOOL!**

OPERATION AND MAINTENANCE

NOTE:

The information contained in this Instruction Manual is designed to assist you in the safe operation and maintenance of the power tool.

Some illustrations in this Instruction Manual may show details or attachments that differ from those on your own power tool

NAME OF PARTS

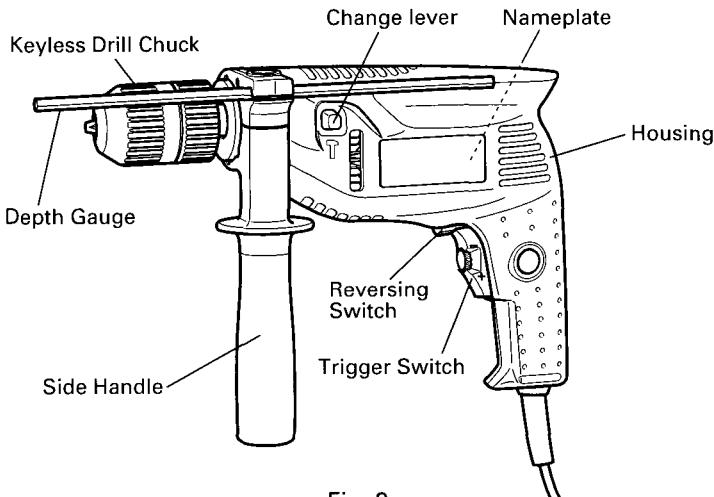


Fig. 3

SPECIFICATIONS

Motor	Single Phase, Series Commutator Motor
Power source	Single Phase 115V AC 60 Hz
Current	5 A
Reversible	Yes
No-load speed	0-2900 rpm
Drill chuck capacity	1/2" (13mm)
Capacity	Steel
	1/2" (13mm)
	Concrete
Capacity	5/8" (16mm)
	Wood
Weight (Without Cord)	3.52 lbs (1.6 kg)

ACCESSORIES

⚠ WARNING: Accessories for this power tool are mentioned in this Instruction Manual.

The use of any other attachment or accessory can be dangerous and could cause injury or mechanical damage.

STANDARD ACCESSORIES

(1) Case (Code No. 315999)	1
(2) Side Handle (Code No. 303659)	1
(3) Depth Gauge (Code No. 310331)	1

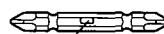
OPTIONAL ACCESSORIES sold separately

(1) Drill bit for concrete and stone

Bit Dia.	Overall Length	Code No.	Bit Dia.	Overall Length	Code No.	Bit Dia.	Overall Length	Code No.
1/4" (6.5mm)	4" (100mm)	931851	3/8" (10mm)	4-3/4" (120mm)	931854	9/16" (14.3mm)	6-5/16" (160mm)	931776
5/16" (8mm)	4" (100mm)	931852	15/32" (12mm)	4-3/4" (120mm)	971704	5/8" (16mm)	6-5/16" (160mm)	931670
0.37" (9.5mm)	4-3/4" (120mm)	931853	1/2" (13mm)	6-5/16" (160mm)	931855			

(2) Phillips bit

Bit No.	Screw Size	Length	Code No.
No. 2	1/8"-3/16" (3mm-5mm)	2-3/4" (70mm)	955654
No. 3	1/4"-5/16" (6mm-8mm)	2-3/4" (70mm)	955655



Bit No.

(3) Slotted bit

a	Screw Size	Code No.
1/32" (0.8mm)	5/32" (4mm)	955659
3/64" (1mm)	3/16"-1/4" (5mm-6mm)	955674



NOTE:

Accessories are subject to change without any obligation on the part of the HITACHI.

APPLICATIONS

- By combined actions of ROTATION and IMPACT:
Boring holes in hard surfaces (concrete, marble, granite, tiles, etc.)
- By ROTATIONAL action:
Boring holes in metal, wood and plastic.
Tightening wood screws.

PRIOR TO OPERATION

1. Power source

Ensure that the power source to be utilized conforms to the power source requirements specified on the product nameplate.

2. Power switch

Ensure that the switch is in the OFF position. If the plug is connected to a receptacle while the switch is in the ON position, the power tool will start operating immediately and can cause serious injury.

3. Extension cord

When the work area is far away from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

⚠ WARNING: Damaged cord must be replaced or repaired.

4. Check the receptacle

If the receptacle only loosely accepts the plug, the receptacle must be repaired. Contact a licensed electrician to make appropriate repairs.

If such a faulty receptacle is used, it may cause overheating, resulting in a serious hazard.

5. Confirming condition of the environment:

Confirm that the work site is placed under appropriate conditions conforming to prescribed precautions.

6. Side handle attachment

Attach the side handle to the mounting part.

Rotate the side handle grip in a clockwise direction to secure it.

Set the side handle to a position that is suited to the operation and then securely tighten the side handle grip.

7. Selecting the appropriate drill bit:

- When boring concrete or stone

Use the drill bits specified in the Optional Accessories.

- When boring metal or plastic

Use an ordinary metalworking drill bit.

Sizes range from a minimum of 1/16" (2mm) to chuck maximum capacity.

- When boring wood

Use an ordinary woodworking drill bit.

However, when drilling 1/4" (6.5 mm) or smaller holes, use a metalworking drill bit.

8. Selecting the driver bit

Screw heads or bits will be damaged unless a bit appropriate for the screw diameter is employed to drive in the screws.

9. Mounting and dismounting of the bit.

(1) Mounting the bit

After inserting a driver bit, etc. into the keyless drill chuck, firmly grasp the ring and tighten the sleeve by turning it toward the right (in the clockwise direction as viewed from the front). (See Fig. 4)

- If the sleeve becomes loose during operation, tighten it further. The tightening force becomes stronger when the sleeve is tightened.

(2) Dismounting the bit

Firmly grasp the ring and loosen the sleeve by turning it toward the left (in the counterclockwise direction as viewed from the front). (See Fig. 4)

NOTE:

When the sleeve does not become loose any further, fix the side handle to the sleeve. Then, strike the grip of the side handle to the left in order to loosen the sleeve, while holding the ring by hand. (Fig. 5)

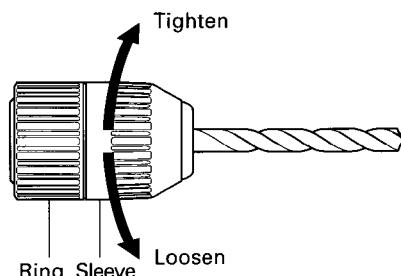


Fig. 4

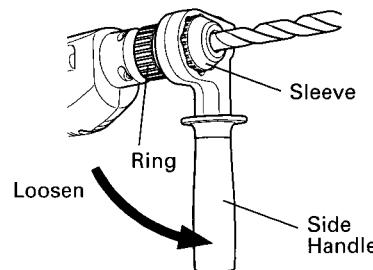


Fig. 5

⚠ CAUTION

Do not fix the side handle to the ring of the keyless chuck because of a risk that doing so may damage the ring.

10. Confirm the direction of bit rotation (Fig. 6)

The bit rotates clockwise (viewed from the rear side) by pushing the R-side of the reversing switch lever.

The L-side of the lever is pushed to turn the bit counterclockwise.

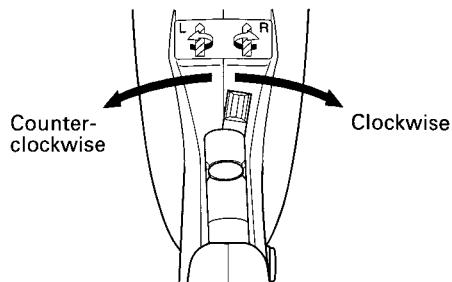


Fig. 6

⚠ CAUTION

- Never change the direction of bit rotation while operating. Turn the power switch OFF before changing the direction of bit rotation: otherwise, burning of the motor will result.
- Always use the hammer drill with clockwise rotation, when using it as an hammer drill.

11. IMPACT to ROTATION changeover

(Fig. 7)

The Hammer Drill can be switched from IMPACT (impact plus rotation) to

ROTATION (rotation only) by rotating the change lever (Fig. 1). When boring concrete, stone, tile or similar materials, sliding the change lever to IMPACT side. The drill head impacts against the material while continuing to rotate.

When boring metal, wood or plastic or tightening, sliding the change lever to ROTATION side. The drill rotates as an ordinary electric drill.

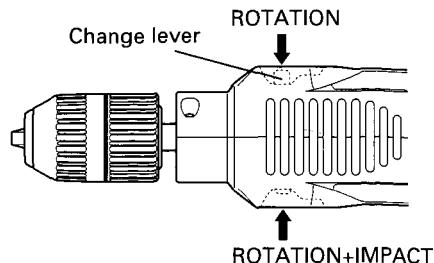


Fig. 7

⚠ CAUTION

Do not use the Hammer Drill in the IMPACT function if the material can be bored by rotation only. Such action will not only reduce drill efficiency, but may also damage the drill tip.

HOW TO USE

1. Speed adjustment and switch operation

- The drill speed can be adjusted from 0 through full speed by regulating the trigger-squeezing force. The more the trigger is squeezed, the faster the drill rotates. When the trigger is squeezed fully, the speed is the maximum.
Turn the adjust knob clockwise for higher speed and counterclockwise for lower speed. (Rotate the adjust knob approximately 2-2/3 turns.) (Fig. 8)
- Pulling the trigger switch and pushing the stopper, it keeps the switched-on condition which is convenient for continuous running. When switching off, the stopper can be disconnected by pulling the trigger again.

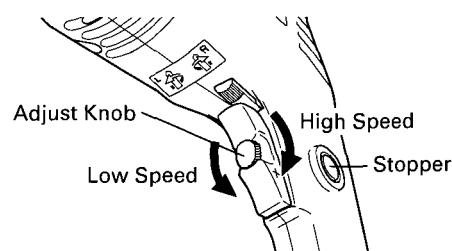


Fig. 8

2. When using as a Drill or a Hammer Drill

(1) Pressing force of the drill

You cannot drill holes more quickly even if you press the drill with a stronger force than necessary. It not only damages tip of drill bits and decreases the efficiency of operation, but also shortens the life of the drill.

(2) In case of penetrating holes

Drill bits can be broken when the material being drilled is penetrated. It is important to decrease pressing force just before penetrating.

⚠ CAUTION : In continuous operation, conduct no-load operation for five seconds after completing a drilling job.

⚠ WARNING: When a thick drill bit is used, your arm is subjected to larger reaction force. Be careful not to be moved by the reaction force. For this, establish a foothold, hold the unit tightly with both hands perpendicularly to the material being drilled.

3. When driving wood screws

(1) Selecting a suitable driver bit

Employ plus-head screws, if possible, since the driver bit easily slips off the heads of minus-head screws.

(2) Driving in wood screws

- Prior to driving in wood screws, make pilot holes suitable for them in the wooden board. Apply the bit to the screw head grooves and gently drive the screws into the holes.
- After rotating the driver bit at low speed for a while until a wood screw is partly driven into the wood, squeeze the trigger more strongly to obtain the optimum driving force.

NOTE:

Exercise care in preparing a pilot hole suitable for the wood screw taking the hardness of the wood into consideration. Should the hole be excessively small or shallow, requiring much power to drive the screw into it, the thread of the wood screw may sometimes be damaged.

MAINTENANCE AND INSPECTION

⚠ WARNING: Be sure to switch power OFF and disconnect the plug from the receptacle during maintenance and inspection.

1. Inspecting the driver bit

Since continued use of a worn driver bit will damage screw heads, replace the driver bit as soon as excessive wear is noticed.

2. Inspection the drill bit

Continued use of a worn and/or damaged drill bit will result in reduced drilling efficiency and may seriously overload the drill motor. Inspect the drill bit frequently and replace it as necessary.

3. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loosened, retighten them immediately.

⚠ WARNING: Using this hammer drill with loosen screws is extremely dangerous.

4. Maintenance of the motor

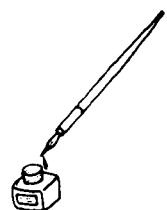
The motor unit winding is the very "heart" of the power tool. Exercise due care to ensure the winding does not become damaged and/or wet with oil or water.

5. Inspecting the carbon brushes

For your continued safety and electrical shock protection, carbon brush inspection and replacement on this tool should ONLY be performed by a HITACHI AUTHORIZED SERVICE CENTER.

SERVICE AND REPAIRS

All quality power tools will eventually require servicing or replacement of parts because of wear from normal use. To assure that only authorized replacement parts will be used, all service and repairs must be performed by a HITACHI AUTHORIZED SERVICE CENTER, ONLY.



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